**Day 3 Recommendations – Cascadia Response**

Group 1 Recommendations

1. Use guided inquiry to create a focused and safe environment for collaboration.
2. The inquiry process
   1. starts with a targeted question around student learning.
   2. Iteratively gathers and collects evidence (possibly with a protocol) through activities such as FIGs, CATS, classroom exchanges and common assessments.
   3. Results in ongoing changing practice.

*This has been a major component of our work during 2011-2012. Our cohort which included high school teachers explored the question, “How do we design and facilitate group-work in Elementary/Intermediate Algebra classrooms in order to increase student understanding?” We strongly believe there is power in using guided inquiry in a collaborative setting and plan to continue and expand this model. We recognize that we could improve our methods for iteratively gathering and collecting evidence.*

Group 2 Recommendations

1. Departmental investment in creating a curriculum which supports deeper student understanding: Faculty take control of curriculum either by re-examining course learning outcomes or using backwards design – this process is not dictated by textbook content or other external forces but by what we *really* want students to understand. Faculty must have a willingness to rethink or move away from the traditional curriculum. This process allows for deeper learning experiences in the classroom and a shift in the role of faculty from lecturer to facilitator. Students explaining their mathematical thinking becomes a powerful learning activity.

*We question the large quantity of words in this set of recommendations, and hope it could be tightened up for clarity. Given that, the part of the recommendation we most agree with it that faculty must shift their thinking about what role they play in a classroom in order to improve student learning. We have addressed this on our campus by prioritizing group-worthy tasks during class time, and shifting time for skill development to outside the classroom by providing online resources. This change has enabled us to collectively analyze and expand our facilitation skills in the classroom.*

1. Proactive leadership in the (campus) community promoting math literacy: Math faculty should be actively engaged in shaping the campus cultural perception of mathematics. Specifically, faculty should advocate the fact that no one is born “bad at math” and lead a conversation that challenges the conventional wisdom regarding what math is and how it is learned.

*We agree that math faculty have a role and responsibility in promoting math literacy on campus, and feel we have done this sporadically, but not always consistently.*

1. *Provide interested instructors at all levels (adjuncts and FT) with time, space, and support to experiment (resulting in either success or failure) without fear of repercussion.*

*We agree this is a positive recommendation, but are confused about its connection to changes in professional identities and faculty leadership roles.*

Group 3 Recommendations

1) Now we use Formative Assessments in the classroom to frequently gain information about student understanding and we use that information to decide what to do next as teachers. Formative Assessments include, but are not limited to: common cross-course and cross-section questions, group quizzes/tests, multiple drafts of complex tasks, CATS, self-assessment.

2) As the use of Formative Assessment moves from educators tinkering in isolation to a visible part of our collective practice there is a noticeable shift in the adaptive capacity of a department to help students be successful. The visibility comes through participation in structured FIGS, formal lesson study, departmental initiatives using evidence-based practices, and state-wide retreats.

*We like these recommendations, and have implemented many of these examples in our classes. We have begun this collaborative process, and hope to expand it in the future.*

Group 4 Recommendations

1. Effective tasks were open ended, not listed with a,b,c,d to lead to the answer. Just ask the question and allow students to struggle in the practice of real problem solving. These require training, experimentation, reflection and support to create.

*We agree that effective tasks are open-ended and without excessive scaffolding. (We think this is what this recommendation is implying, although the wording is a little confusing.) This idea has been a focus for our group-worthy task creation process, and we have noticed a significant increase in student engagement when these types of activities are used.*

2) A skilled facilitator is clear on their goals/outcomes beyond math skills, sets expectations for process and frustration in class, engages each student, guides the inquiry but does not give answers, and encourages productive struggle. Requires training, experimentation, reflection, and support.

*We completely agree that the facilitation of the task is equally as important as the task itself, and that instructors are in need of training to achieve this shift.*

3) To promote contextualized tasks, adjust course outcomes and assessments to encompass the demands of contextualized tasks and real life applications. These outcomes can't just be math procedures, but rather the thinking skills to employ the math skills that they've learned in the real world.

*We agree. This has not been our particular issue, but it makes sense that it is important for campuses to address in order to facilitate department-wide change.*

Group 5 Recommendations

1. Reallocate classroom time to make space to shift faculty role to coach from answer-machine, encourage multiple representations and strategies, and develop students’ abilities to articulate math.
2. Department-wide collaboration (such as faculty inquiry groups, exchanges and shared activity development) which enables the design of new ways to draw out student thinking, reasoning and sense making.
3. Explore and embrace research on theories of student learning with time and framework for discussion.

*We support all these recommendations, and see them as overlapping with the various other groups’ recommendations. This is a nice summary of faculty role shifting, collaborative inquiry processes, and shifting instructional practices in the classroom.*